

# 2003 Comparative Analysis of Enterprise (Micro) Data Conference Program

## *ICT - OECD Session*

### **Effects of ICT Use on the Performance of Australian Firms: Evidence from a Business Longitudinal Data Set**

**Paul Gretton (Australian Productivity Commission)**

**Jyothi Gali**

Analysis of firm-level data from the Australian Business Longitudinal Survey shows positive and significant links between ICT use and productivity growth in manufacturing and a range of service industry sectors. This conclusion is not sensitive to changes in model specification or to the adoption of alternate measures of ICT use considered. Firm-characteristics were found to be important in identifying businesses using ICTs while significant interactions were also found between ICT use and complementary organisational characteristics (including skill, improved business practices and business restructuring) in raising productivity. Transition dynamics and time lags were of importance. After an initial productivity boost associated with the uptake of selected ICTs, productivity effects were estimated to have tapered off over time. Thus, the study suggests the ultimate productivity effects of a new innovation is a step up in levels, rather than a permanent increase in the rate of growth.

**Keywords:** productivity; information and communications technologies (ICTs); general purpose technology; firm-level analysis; economic growth

**JEL Classification:** D2, O3, O4

### **PRODUCTIVITY EFFECTS OF ICT IN FINNISH BUSINESS**

**Mika Maliranta (ETLA, The Research Institute of the Finnish Economy)**

**Petri Rouvinen**

This report concludes the first phase of The economic effects of information and communication technology research project. Its primary objectives were to compile the necessary data, establish research links, and conduct preliminary analysis.

The findings show that widespread use of ICT is indeed quite recent. Contrary to what was believed in the midst of the 'new economy' boom, the increasing use of ICT is primarily a 'within firms' phenomenon, i.e., the contribution of restructuring to the observed changes in the aggregate ICT intensity is rather marginal. Decompositions nevertheless suggest that experimentation and selection are quite intense among young ICT-intensive firms. After controlling for industry and time effects as well as labor and other firm-level characteristics, the excess productivity of ICT-equipped labor ranges from eight to eighteen per cent. The effect is manifold in younger firms and in ICT-providing branches. The finding with respect to firm age is consistent with the need of ICT-complementing organizational changes. The finding on ICT-providing branches is not driven by the communications equipment industry but rather by ICT services. Overall, the ICT-induced excess productivity seems to be somewhat higher in services than in manufacturing. Manufacturing firms benefit in particular from ICT-induced efficiency in internal whereas service firms benefit from efficiency in external communication. We find weak evidence for the complementarity of ICT and education.

**Keywords:** Productivity, information and communication technology, ICT, new economy

## **ICT, innovation and productivity**

**George van Leeuwen (CPB, Netherlands)**

**Henry van der Wiel**

Can productivity growth be boosted by further investments in ICT? This article presents evidence on the relation between ICT use, innovation and productivity based on firm-level panel data. ICT can contribute to labour productivity growth directly through capital deepening and indirectly by enhancing innovation. The results also indicate that the potential of many firms to catch up their ICT endeavour may boost (aggregate) labour productivity growth further.

## ***Rewarding employees***

## **Profit Sharing: Earnings and Productivity Effects in Finland**

**Antti Kauhanen (The Research Institute of the Finnish Economy and Helsinki School of Economics)**

**Hannu Piekola**

Using Finnish linked employer-employee data from 1996-2000, it is shown that profit sharing is used mainly in firms where it is difficult to measure the output of individual employees. These firms are typically large and face high monitoring costs, and are likely to be characterised by a high R&D intensity and extensive use of skilled workers. The productivity effects are around 7% when the composition of the workforce is controlled for. Despite an earnings effect of similar magnitude, on average 7%, profit sharing also improves the profitability of the firms. Profit sharing also seems to increase the P/E ratios.

**Keywords:** Profit sharing, productivity, linked employer-employee data

**JEL Classification:** J32, J33, J53, C23

## **Employer-Provided Benefit Plans, Workforce Composition & Firm Outcomes**

**Kristin McCue (U.S. Census Bureau)**

**Anja Decressin**

**Julia Lane**

**Martha Stinson**

Employer-provision of fringe benefits such as pensions and health insurance has been found to be positively associated with measures of worker skill, reduced turnover, and retirement behavior. Through their effects on a firm's workforce, benefits may also help determine firm outcomes such as productivity and survival. Understanding the determinants of fringe benefit offerings and their consequences for firm outcomes requires information on both parties to the arrangement—workers and employers. But such detailed data are scarce because workers have difficulty reporting benefit details, while employers have difficulty giving detailed information about their employees. Hence work in this area has been hampered by data limitations. This paper begins to fill this gap by exploiting a new database that combines administrative data on benefits with integrated employer-employee data. The database combines detailed microdata on costs, enrollment and plan features for employer-provided benefits from employers' administrative filings; firm characteristics drawn from the U.S. Census Bureau's Business Register (a list of all private employers) and from the censuses and surveys drawn from that register; and detailed longitudinal information on workforce composition, earnings and turnover for over 1 million U.S. businesses and their employees constructed from unemployment insurance records as part of the LEHD program. The paper first describes the construction and unique characteristics of this database. It then uses data from these sources for the 1990s to explore the relationship between firm benefit offerings; workforce characteristics such as within-firm distributions of age, sex, wages, human capital, and turnover; and firm outcomes such as productivity and survival.

**Keywords:** benefits; turnover; compensation; productivity; business survival; churning; employer employee data

**JEL Classification:** J24, J32, J33, J63

## **MANUFACTURING FIRMS' DECISIONS REGARDING RETIREE HEALTH INSURANCE**

**Alice Zawacki (Center for Economic Studies, U.S. Bureau of the Census)**

**PATRICIA H. BORN**

This study analyzes the firm's decision to offer and contribute to retiree health insurance. We apply a binomial probit model and an interval regression model to analyze the likelihood of offering and the proportion of costs contributed by the firm. Our findings indicate that while firm characteristics affect the probability that a firm offers retiree health insurance, financial performance and alternative insurance options significantly affect the firm's generosity towards its cost. This study expands on previous research by including potentially important policy-related measures to the more limited set of firm and workforce characteristics that have been typically employed.

**Keywords:** Employer-sponsored benefits; health insurance; retirees

**JEL Classification:** D21, J32, I10

### ***Productivity 1***

## **Firm Spin-offs in Denmark 1981-2000 - Patterns of Entry and Exit**

**Johan Moritz Kuhn (Aarhus School of Business)**

**Tor Eriksson**

This paper aims at extending our knowledge about new firms which have been founded by persons who have previously been employed in the same workplace. These firms will be considered as spinoffs. Using an exhaustive sample from the population of all Danish firms in the period 1981-2000, we compare the survival probabilities of these firms with those of other firm start-ups, and find them to be characterized by higher survival rates. This observation also remains after controlling for firm and employee characteristics.

**Keywords:** firm demographics, spin-offs

**JEL Classification:** L11, L25

## **Are Dutch Services Industries Becoming More Productive? Explorations on Micro-data**

**Jacco Daalmans (Statistics Netherlands)**

Statistics Netherlands is planning to set up a system of productivity statistics. An innovative approach is to directly build up productivity indices from data at the level of the individual firm. To study the feasibility of this approach, several exercises have been carried out, using micro-data on trade services, transport services and business services. It will be shown how sensitive productivity indices are with respect to the method. Some recommendations about the method will be given. Keywords: Productivity change, decomposition methods, micro-data, trade services, transport services, business services, firm mutation

**JEL Classification:** C81, D24, J24, L11, L80, L90, O12, O47

## **Industrial Competition, Shifts in Market Share and Productivity Growth**

**Wulong Gu (Statistics Canada)**

**John Baldwin**

This paper investigates the extent to which productivity growth is the result of turnover—of the extent to which output is shifted from one firm to another as a result of the competitive process. Turnover occurs because some firms gain market share and others lose it. Some turnover is due to entry and exit. The other part arises from growth and decline in incumbent continuing producers. The paper proposes a method for measuring the impact of plant turnover on productivity growth and outlines how this contribution has changed in Canada as a result of substantial trade liberalization in the 1990s.

## ***Business demographics and performance 1***

## **Analysing the Pre-Exit Performance of French Manufacturing Firms over the last decade**

**Flora Bellone (France, IDEFI-CNRS and University of Corsica)**

**Patrick Musso, Michel Quéré**

In this paper, we analyze the pre-exit performance of industrial firms using a French manufacturing firm-level dataset and focusing on the 1990-2000 period. Our empirical

investigation is carried out from theoretical models of firm behaviour that allow heterogeneity among firms, idiosyncratic (or firmspecific) source of uncertainty, and discrete outcomes (entry and exit). We confirm the prediction of these models according to which exiting firms experience a decrease in their relative performance levels (in terms of total factor productivity) some times prior to their exit. However, we do not find similar patterns with regards to employment and value-added. Specifically, exiting firms do not exhibit a decreasing trend in their relative size some times prior to their exit.

**Keywords:** Entry and Exit patterns, Productivity Analysis

**JEL Classification:** D24, L11, L60

### **Government grants, plant survival and employment growth: A micro-econometric analysis**

**Eric Strobl (CORE, Université catholique de Louvain)**

**Sourafel Girma**

**Holger Görg**

In this paper we analyse the impact of governmental grant provision on plant performance. To this end we utilise rich information derived from three data sources for the manufacturing sector in Ireland, where grant provision has been an important part of the industrial policy. We use a matching technique combined with a difference-in-differences estimator in the empirical analysis. Our results indicate that particularly capital and technology related, but also other types of grants can provide an important impetus to plant survival and employment growth.

**Keywords:** government assistance, grants, employment, survival, matching, difference-in-differences

**JEL Classification:** J2, L2, H2

### **Reallocation, Firm Turnover and Efficiency: Selection on Productivity or Profitability**

**Lucia Foster (Center for Economic Studies, U.S. Census Bureau)**

**John Haltiwanger**

**Chad Syverson**

A pervasive finding in the burgeoning literature using business microdata is that firm turnover is high and that this churning process contributes substantially to aggregate (industry) productivity growth, as more productive entrants appear to displace less productive exiting businesses. A limitation of this research is that establishment-level prices are typically unobserved, resulting in within-industry price differences being embodied in productivity measures. If prices reflect idiosyncratic demand shifts or market power variation, high “productivity” businesses may not be particularly efficient. In this case, the literature’s findings might be better interpreted as evidence of entering businesses displacing less profitable, but not necessarily less productive, exiting businesses. This distinction is important not only for the sake of understanding the positive features of selection, but the normative ones as well; whether selection is driven by efficiency or market power differences has important welfare implications. In this paper, we investigate the nature of selection using data from industries where we observe both establishment-level quantities and prices. We find that, as has been found in the preceding literature for revenue-based TFP measures, physical productivity and prices also exhibit considerable within-industry variation. We also show that while physical productivity shares common traits with revenue-based measures, there are important differences. These involve the productivity levels of entrants relative to incumbents and the size of the impact of net entry on productivity aggregates. Furthermore, we characterize the dimension(s) of selection and show that both idiosyncratic productivity and demand (price) conditions affect businesses’ survival probabilities. We investigate these issues for the U.S. manufacturing sector using establishment-level data for industries where we observe both establishment level quantities and prices. We explore the nature of the selection dynamics in these industries ? i.e., is selection on productivity or profitability? We also calculate the degree of inefficiency of the reallocation dynamics. Moreover, since the nature of imperfect competition may vary across markets (i.e., local areas and/or industries) we quantify the extent of variation in the nature of imperfect competition across markets and the importance of such variation for understanding the connection between reallocation and productivity growth.

**Keywords:** Productivity, Establishment-Level Data

**JEL Classification:** J2, L1, O4

### ***Innovative uses of business register data***

#### **Business Dynamics in Europe**

**Nicola Brandt (OECD)**

This study presents evidence on firm entry and exit, growth and survival derived with new data from Eurostat, covering nine European Union member countries. One contribution of the study is an analysis of the role of data quality for studies of firm

demographics. Confronting results obtained with the Eurostat data with those of a previous OECD cross-country firm-level data project reveals that different size thresholds and difficulties to distinguish genuine firm entry and exit from mergers & acquisitions, ownership changes or changes in legal form can have sizeable impacts on results. Cross-country differences in firm entry and exit rates are analysed with a special emphasis on detailed information and communication technology (ICT) related sectors, which has not been possible with previously available cross-country data. After controlling for some basic factors, such as countries' industry composition, cross-country differences in entry and exit rates in mature sectors turn out to be negligible, while differences in entry and exit rates in the younger ICT related industries are much larger. This suggests that a potential role for policies and institutions to shape business dynamics may be especially important in those sectors which are thought to have played an important role for innovation and technology adoption in recent years. Further, the paper analyses new firm survival and provides a discussion of how cross-country firm-level data can be used to analyse the effects that economic policy may have on aggregate patterns of employment, output and productivity growth via its impact on firm entry and exit, growth and survival.

**Keywords:** entry, exit, survival, micro data

**JEL Classification:** L11, G33, M13, C81

## **Alternative Measures of Business Entry and Exit.**

**Ron Jarmin (Center for Economic Studies, U.S. Census Bureau)**

**Shawn D. Klimek**

**Javier Miranda**

This paper explores the implications of alternative definitions of business units for computing statistics on business entry and exit, and job creation and destruction in the United States. The goal of the analysis is to point to ways to harmonize comparisons of business demographics across different sources and types of data and across countries. Using the Census Bureau's Longitudinal Business Database (LBD) we compare measures of entry, exit, turnover and job creation and destruction across three alternative definitions of a business unit. The LBD is an establishment level dataset with firm (enterprise) ownership information, as well as detailed geographic, industry and establishment size information. This detailed information allows us to compute measures that are comparable to those obtained with data that are constrained to either establishment or enterprise units, or where enterprise data are available only for smaller geographic units such as individual countries within the European Union or states in the case of ES-202 based data in the U.S. Our first task will be to compare establishment and enterprise level results for all industrial sectors in scope for the LBD. Next, we will use the geographic information in the LBD to characterize enterprise entry, and exit under



two alternative definitions. The first defines the enterprise at the state level. The second defines the enterprise at the national level.

## **Demography of Nonemployer Businesses -- Preliminary Evidence from the United States**

**Alfred Nucci (Center for Economic Studies, U.S. Census Bureau)**

**Richard Boden**

Research on business demography has been conducted for the most part on populations of businesses with employees. While this work has contributed much to our understanding of firm entry, survival and closing, it remains a partial description of business populations, albeit one covering the vast bulk of economic activity. A substantial number of businesses without employees remains outside the scope of these studies. The dynamics of these firms is not well known and their role in the dynamics of employee businesses remains illusive. This paper studies the population dynamics of "firms" without employees but with positive receipts (i.e. nonemployer firms) for the United States during the 1990's. In doing so, we draw upon information available from US Census Bureau's nonemployer firm files for the 1990's. We have two goals in this work. One is the identification of firms as entrants, survivors or closures during the 1990's. We discuss procedures for combining these data, at the firm level, from the individual year's files in constructing a longitudinal database of nonemployer firms. The second is the identification of nonemployer units that become employer ones during this period. To do so, nonemployer firm files are combined with registers of firms with employees in isolating those nonemployer units that become employer units, showing that many units move between the populations during the 1990's. Further, we rely upon work conducted at US Census Bureau's Center for Economic Studies (its Longitudinal Business Database program) in outlining how the nonemployer and employer firm populations may be combined in an economy-wide firm database.

## **Developments in Business Demography - Reconciling Conflicting Demands**

**Steve Vale (Office for National Statistics, UK)**

**Claire Powell**

This paper will compare the methods and issues for enterprise demography both in the UK and the EU. Two key publications, "PA1003 - Size Analysis of United Kingdom Businesses" and the "Small and Medium Enterprise Statistics in the UK" bulletin have been produced for many years. The methodology used and any issues effecting the data will be examined. The development of Neighbourhood Statistics will drive this work forward in the future, details of existing work to meet the demand for regional statistics will be provided. For the last few years the UK has been part of a taskforce to develop a harmonised methodology and is currently finalised the second harmonised data

collection. Details on the background to the EU project, the type of data, and the indicators will be presented. The EU methodology will be compared to that used in the UK. Again looking to future requests the work may be expanded to cover local unit and enterprise group demography, while at enterprise level, information on factors of success will become increasingly importance such as entrepreneurship. Finally the paper will look at other work done by OECD/UNECE on globalisation.

## ***Innovation 1***

### **Innovation cooperation as a means to increase productivity – experiences from East and West Germany**

**Jutta Günther (Halle Institute for Economic Research (IWH))**

East German business enterprises are still economically lagging behind their West German counterparts, especially with respect to productivity. This paper empirically investigates innovation cooperation in East and West Germany as a means to reduce the productivity gap. Besides a description of the general cooperation behavior, it focuses on the question whether cooperating enterprises are indeed more innovative and thus more productive than non-cooperating firms. It can be shown that there are no deficiencies in cooperation frequency or cooperation continuity in East Germany compared to West Germany, and differences in cooperation partner priorities only reflect the given structural differences of the two regions. Cooperating enterprises in East and West Germany are indeed more innovative than non-cooperating firms, but there remains a clear productivity gap between East and West German cooperating firms. Even more surprising, within East Germany noncooperating firms are slightly more productive than cooperating firms. Possible reasons for these rather unexpected findings are being discussed in this paper.

**Keywords:** innovation, productivity, R&D and innovation cooperation

**JEL Classification:** O31, O32

### **Firm Level Innovation and Productivity - Is there a Common Story Across Countries?**

**Bettina Peters (Zentrum für Europäische Wirtschaftsforschung (ZEW))**

**Norbert Janz, Hans Löff**

Recent studies have documented extensive heterogeneity in firm performance within countries, and innovation has been found as an important determinant. This paper

addresses the issue of innovation firm performance across countries. A growing number of national firm level studies on the innovation productivity link have been conducted using new international harmonized survey data, known in Europe as Community Innovation Survey (CIS). Mainly due to confidentiality reasons cross-country comparisons of CIS data are still rare. The contribution of this paper is its unique approach of pooling original firm observations from Germany and Sweden. Applying a knowledge production function that gives the relationship between innovation input, innovation output and productivity, we find to a very large extent a common cross-country story for knowledge intensive manufacturing firms. Some interesting country-specific effects are reported as well.

**Keywords:** Innovation, Productivity, Cross-Country Comparison, Applied Econometrics

**JEL Classification:** O33, D24, P52, C34, C51

## **Export-market Participation and Productivity Performance in Canadian Manufacturing**

**Wulong Gu (Statistics Canada)**

**John Baldwin**

In this paper, we explore the linkages between export-market participation and productivity performance in Canadian manufacturing plants. We also examine differences in the relationship between exporting and productivity for foreign-controlled as opposed to domestic-controlled plants, and between younger and older plants. Export participation is associated with improved productivity. The effect is much stronger for domestic-controlled plants than for foreign-controlled plants and for younger businesses than for older businesses. We interpret this as evidence that there is a learning effect associated with export activity but that the potential for improving productivity with entry to export markets differs across firms.

**Keywords:** Exports; Productivity; Multinationals; Self-selection

**JEL Classification:** F1; O4

## ***International***

### **Foreign direct investment, spillovers and absorptive capacity: Evidence from quantile regressions using the ARD**

**Holger Görg (University of Nottingham and DIW Berlin)**

**Sourafel Girma**

This paper focuses on the role of absorptive capacity in determining whether or not domestic firms benefit from productivity spillovers from FDI using establishment level data for the UK. We allow for different effects of FDI on establishments located at different quantiles of the productivity distribution by using conditional quantile regression. Overall, while there is some heterogeneity in results across sectors and quantiles, our findings clearly suggest that absorptive capacity matters for productivity spillover benefits. We find evidence for a u-shaped relationship between productivity growth and FDI interacted with absorptive capacity. We also analyse in some detail the impact of changes in absorptive capacity on establishments' ability to benefit from spillovers.

**Keywords:** foreign direct investment, absorptive capacity, productivity spillovers, quantile regressions

**JEL Classification:** F21, F23

### **Studies on internationalisation using integrated micro-data: The MICRONOME database at Statistics Netherlands**

**Martin Luppens (Statistics Netherlands)**

**Robert Goedegebuure**

The traditional statistical system of national statistical offices is set up along the historical division of political areas of interest and is limited to the description of national economies which makes it difficult to study the major effects of globalisation and internationalisation on national economies. Much of the required statistical information can be found in dispersed micro-data files of the national statistical offices. The MICRONOME database of Statistics Netherlands contains micro-data from different surveys and administrations, combined on the level of both enterprise and enterprise groups. In this paper the methodology of this database as well as the research on globalisation is described.

## *Job separation*

### **Explaining Individual Job Separations: An Econometric Analysis Applying Employer-Employee Data**

**Anders Frederiksen (Aarhus School of Business, Centre for Corporate Performance and IZA)**

In this paper individual job separations are analysed using employer-employee data. Firstly, it is shown that characteristics reflecting both the demand and supply side of the economy are important predictors for job separations and that failure to account for both sides of the economy simultaneously produces wrong inference. Secondly, labour market destinations subsequent to a job separation are introduced. This additional information reveals that job separations are common and that most individuals have a significant probability of changing job or becoming unemployed whereas the probability of leaving the labour force is very low for most people. Job separations are found to be stable with respect to the unemployment rate but job-to-job and job-to-non-employment transitions vary substantially. In particular the number of job-to-job transitions does increase when economic conditions improve. Combining this with the fact that transitions into unemployment and withdrawals from the labour market are counter cyclical, we conclude that the probability of being employed conditional on employment in the previous period is pro cyclical.

**Keywords:** Employer-employee data; Job separations; Labour reallocation; Random effects models.

**JEL Classification:** C23, E24, J63

### **In the Right Place at the Wrong Time: The Role of Firms and Luck in Young Workers Careers**

**Till v. Wachter (University of California Berkeley)**

**Stefan Bender**

Do early job losses permanently reduce the earnings and career prospects of young workers? Simple estimates may overstate the true effects of early displacements, especially if less able workers sort into firms with high turnover rates. The bias from initial assignment of workers between firms is compounded by biases from selection within firms, which arise if employers selectively displace their least able workers, or if workers move voluntarily to take better jobs. This paper uses longitudinal social security data on German apprentices and their training firms to obtain estimates of the longterm effects of an early job loss that account for nonrandom assignment between firms and

selection within firms. I use differences over time in the fraction of graduating apprentices that are retained by the training firm as an instrument for job displacement. These should reflect exogenous changes in firm-specific labor demand that are independent of individual ability or permanent firm characteristics. Using this strategy, I find that wage losses from leaving the training firm at graduation are initially strong but fade within the first five years in the labor market. The results also confirm an important influence of voluntary mobility and of initial sorting matching trainees to firms. Both of these factors are likely to confound results of previous studies of early job mobility lacking information on the demand side.

**Keywords:** job displacement, young workers, path dependence, sorting, job search

**JEL Classification:** J63, J64, J41 and J24

## **Earnings Losses of Displaced Workers: Evidence From a Matched Employer-Employee Dataset**

**Pedro Portugal (Banco de Portugal and Universidade NOVA de Lisboa)**

**Anabela Carneiro**

This paper examines the long-term earnings losses of displaced workers in Portugal, using a nationally representative longitudinal linked employer-employee data set. The results show that four years after displacement the earnings of displaced workers remain around 8% (women) to 11% (men) below their counterfactual expected levels. The post-displacement earnings losses are mainly associated with the loss of tenure within the firm and, to a lesser extent, to the loss of sector-specific features. Furthermore, workers who experienced a spell of nonemployment are the most affected by job displacement. Finally, this study points to the importance of controlling for employers' characteristics in this type of wages-dynamic analysis, since there are systematic differences in earnings between displaced and non-displaced workers that stem from differences in firm characteristics. Ignoring them may confound the evaluation of the earnings losses.

**Keywords:** displacement; earnings losses; nonemployment; firm characteristics

**JEL Classification:** J31; J63; J65

*Wages 1*

## **Explaining Gender Wage Differentials: Findings from a Random Effects Model**

**Tomi Kyyrä (Government Institute for Economic Research)**

**Ossi Korkeamäki**

In this paper we evaluate the extent to which the gender wage gap in the Finnish manufacturing sector is attributable to within-job wage differentials, sex differences in individual qualifications, and disproportionate concentration of women into lower paying firms and lower-paying jobs within firms. We use matched employer-employee data to compare wage differentials between similarly qualified female and male workers who are doing the same job for the same employer. Our modeling approach employs a nested random effects specification to account for the hierarchical grouped structure of the underlying data.

**Keywords:** Gender wage gap, wage discrimination, sex segregation, random coefficient model.

**JEL Classification:** J16, J31, J71, C21

## **Rent Sharing Before and After the Wage Bill**

**Pedro Martins (University of Warwick)**

Many biases plague the estimation of rent sharing in labour markets. Using a Portuguese matched employer-employee panel, these biases are addressed in this paper in three complementary ways: 1) Controlling directly for the fact that firms that share more rents will, *ceteris paribus*, have lower net of wages profits. 2) Instrumenting profits via interactions between the exchange rate and the share of exports in total sales of firms. 3) Considering firm or worker fixed effects. These approaches are shown to clarify conflicting findings in the literature. From our preferred specifications, robust to a number of competitive interpretations, we bound Lester ranges of pay dispersion between 22% and 56%.

**Keywords:** Rent Sharing; Instrumental Variables; Matched Employer-Employee Data; Fixed Effects.

**JEL Classification:** C33, J31, J41.

## **Starting Wages, Hires and Separations**

**Gauthier Lanot (Queens University Belfast)**

**Paul Bingley**

We study the empirical relationship between the hiring rate, separation rate and starting wages. A practical empirical model is set up and estimated on Danish matched employer-employee longitudinal data for the period 1980-1995. We find (1) firm heterogeneity is important in all dimensions of our model: starting wages, time between hires and employment length (2) matching between firms and workers is exogenous (3) friction effects in the determination of wages are very small, which suggests that the Danish labour market is close to competitive.

**Keywords:** linked longitudinal employer-employee data, unobserved heterogeneity, durations, semiparametric mixtures.

**JEL Classification:** J31, J63, C33, C41

## ***Data access and disclosure control***

### **Disclosure control issues associated with access to business microdata in safe settings**

**David Brown (Office for National Statistics, UK)**

**Caroline Young**

Because of the difficulty of applying disclosure control treatment to business microdata that gives adequate confidentiality protection whilst not damaging the data for essential economic analysis purposes, access is sometimes allowed within a 'safe setting'. The granting of such access usually requires confidentiality agreements, as well as the checking of all outputs that are removed from the safe setting to ensure that confidentiality of individual businesses is adequately protected. Standard disclosure control measures are not usually adequate for this task. In this presentation, we discuss the problems, and some initial approaches to potential solutions.

### **Can we provide microdata access and maintain confidentiality?**

**Marta Haworth (Office for National Statistics, UK)**



There is a growing appreciation of the benefits of providing access to Microdata for research and analysis. At the same time it is vital to protect data confidentiality. ONS, in parallel with other National Statistical Institutes, is developing new approaches to meeting these objectives which create conflicting pressures. This paper discusses the issues and challenges this presents and recent developments, both in the UK and in the international context.

## **Disclosure of confidential information by means of multi objective optimization**

**Rainer Lenz (Federal Statistical Office of Germany)**

Assessing the effectiveness of an anonymization method w.r.t. data protection, the disclosure risk associated to the protected data must be evaluated. We consider the scenario where a possible data intruder matches an outside database with the protected data (target data); e.g. in order to improve his outside database he may try to assign as many correct pairs of records (that is; records corresponding to the same individual) as possible. The problem of maximization of the number of correct assigned pairs is translated into a multi objective linear assignment problem (MOLP).

We calculate the solutions to the MOLP obtained by application to the german structure of costs survey (SCS) reduced to processing industry. Regarding specific anonymization methods, we get an upper bound for the disclosure risk by assuming the worst-case scenario, in which the outside database equals the original data. Since combining all objectives into one single value - as it is typically done in a linear program formulation - in general leads to considerable loss of useful information, we compare the results obtained by setting different vector weights to the system of multiple objectives. Solving the MOLP by use of greedy heuristics does not guarantee optimality. Nevertheless, those approaches are also discussed since their undoubted advantage is that they work agreeable time, precisely in square time complexity w.r.t. the number of individuals.

## ***Firm size***

## **REVEALING ENTREPRENEURIAL TALENT**

**Francesco Ferrante (Università di Cassino)**

A society's allocation of working time to entrepreneurial, organizational and learning activities is the main factor behind technical change and economic growth. Building on Lucas (1978) and Kihlstrom and Laffont (1979), in this paper I offer evidence that the amount of working time spent by small business owners in entrepreneurial activities affects the performance of the business and reveals their entrepreneurial talent. The intuition is that it is reasonable to allocate more of our time to those activities where we

realize we are more productive. As actual consumption choices reveal consumer preferences, the varying entrepreneurial content of the activities performed is a signal of an individual's ability as entrepreneur. The results obtained suggest that the allocation of working time by small business owners: (a) throws light on their behavioral patterns; (b) is related to the owner's human capital and to firm size; and (c) has a significant correlation with business performance. The main finding of my analysis, confirming previous studies on this topic, is that education is an important part of entrepreneurial human capital. Moreover, the latter is the main factor that can sustain small firms' competitiveness in a globalizing economy.

**Keywords:** Entrepreneur, Time allocation, Human capital

**JEL Classification:** J22, J23, J24

### **Generalizing Gibrat: Reasonable stochastic multiplicative models of firm dynamics with entry and exit**

**Matteo Richiardi (LABORatorio Riccardo Revelli)**

Multiplicative models of firm dynamics 'à la Gibrat' have become a standard reference in industrial organization. However, some unpleasant properties of their implied dynamics – namely, their explosive or implosive behaviour (firm size and number collapsing to zero or increasing indefinitely) - have been given only very little attention. In this paper I investigate using simulations which modifications to the standard multiplicative model of firm dynamics lead to stable (and reasonable) distributions of firm size.

I show that in order to obtain stable systems for a wide range of average growth rate, either heteroskedasticity in the growth rates has to be assumed, or entry and exit mechanisms included. In particular I show that combining the broad class of threshold entry mechanisms and the more restricted class of threshold exit mechanisms with overcapacity penalizing all firms (where entry and exit are determined with reference to an exogenously defined total capacity of the market), lead to stable distributions even in the case of growth rate homoskedasticity, given a non-zero minimum threshold for firm size.

**Keywords:** Firm growth, Gibrat's Law, Entry, Exit, Simulation

**JEL Classification:** L11, C63

### **Sectoral Differences in Plant Start-up Size**

**Satu Nurmi (Helsinki School of Economics and Statistics Finland)**

New knowledge on the factors behind the choice of plant entry scale is important for understanding the entry process and the recruitment decisions of new plants in different

sectors of the economy. The purpose of this paper is to evaluate the effect of various industry attributes on plant start-up size, measured with employment, using data on the whole Finnish business sector. The paper extends previous research by examining the differences between manufacturing and services and by using a richer set of explanatory variables. The unobserved plant level heterogeneity is taken into account by using quantile regression approach. The results for manufacturing and services are remarkably similar. However, the findings imply that in the future analysis it is also important to consider the effect of the regional availability of educated and experienced work force on plant start-up size in these two sectors. The findings also suggest that scale economies and industry turbulence are more important for the start-up decision of the largest entrants than the smaller ones. Furthermore, large entrants are more likely to enter industries where foreign trade plays an important role. The results also show that the different environment faced by new plants belonging to firms with multiple plants has to be taken into account. The findings suggest that scale economies and industry turbulence are more important for the start-up decision of the largest entrants than the smaller ones. Furthermore, large entrants are more likely to enter industries where foreign trade plays an important role. The results also show that the different environment faced by new plants belonging to firms with multiple plants has to be taken into account. Further analysis is needed to shed light on the relationships between the availability of educated and experienced work force in the industry and plant start-up size.

**Keywords:** Entry, start-up size, industry differences, quantile regression

**JEL Classification:** J21, J23, L11, L25

### *Industry studies 1*

#### **Comparative Study of Domestic and Foreign Bank Performance in Thailand: The Regression Analysis**

**Saovanee Chantapong (Christian-Albrechts-Universitat zu Kiel)**

This paper studies the performance of domestic and foreign banks in Thailand in terms of profitability and other characteristics after the East Asian financial crisis. The study is based on a micro bank-level panel data on financial statements by pooling cross-bank time-series data with the major balance sheet and income statement ratios for domestic and foreign banks in Thailand for 1995-2000. The estimation results of this study indicate that foreign bank profitability is higher than the average profitability of the domestic banks. All banks gradually improved their profitability during the post-crisis period after the shock. As for the commitment to domestic economy, both domestic and foreign banks reduced their credit exposure during the hard times. Importantly, the study finds that in the post-crisis period, the gap between foreign and domestic profitability become closer. This shows some positive results of the financial restructuring program.

**Keywords:** International Financial Markets, Banks, Ownership Structure, Restructuring

**JEL Classification:** G15 G21 G32 G34

**Universities and the local economy: evidence from Swedish employer-employee linked data**

**Helena Persson (Swedish Institute for Social Research, Stockholm University)**

**Håkan Regnér**

This paper investigates the relationship between universities and local economic growth. Drawing on the new growth theory, we expect that firms located close to a university get access to new knowledge and information from education, teachers and researchers and these spillovers affect their ability to grow. In contrast to all previous empirical studies we use administrative employer-employee linked time series data consisting of all establishments in Sweden. The results show that the wave of new universities established in the 1970s did not have any significant effect on the number of start-ups, survival rate of firms, overall local employment rate, local employment growth among university graduates and business structures. Our data are collected from administrative records kept by Statistics Sweden and we have detailed information on every establishment. Therefore the results cannot be due to measurement or aggregation errors. The results can emerge if the new universities provide education with no spillover-effects or if university graduates adding most to employment growth and start-ups, move. Since the last outcome year is 1995, it is also possible that it takes more than 20 years before a university has a significant effect on the local economy.

**Keywords:** Growth, new establishments, regional education, employer-employee linked data

**JEL Classification:** O18, O40, R11, I20

*Labour market dynamics 1*

# **MEASURING THE JOB CREATION AND JOB DESTRUCTION DYNAMICS UNDERLYING EMPLOYMENT GROWTH**

**R Jason Faberman (U.S. Bureau of Labor Statistics)**

**Richard L. Clayton**

**Akbar Sadeghi**

**James R. Spletzer**

**David M. Talan**

This paper introduces a relatively new source of establishment microdata produced by the Bureau of Labor Statistics. From these data, the Bureau will produce quarterly estimates of job creation and job destruction for the U.S. labor market. These statistics will provide a detailed picture of the constant job turnover that underlies employment growth. The paper describes the scope and coverage of the data, as well as the methodologies used to link establishment records over time. Finally, the paper presents preliminary estimates of job creation and destruction for the U.S. private sector from 1992 through 2002. These estimates show that the most recent economic downturn had a dramatic, but short-lived increase in the pace of job destruction. The 2001 recession, however, has had a dramatic decrease in the rate of job creation, which persists through the end of 2002.

**Keywords:** business cycles, job creation, job destruction, establishment microdata

**JEL Classification:** C82, E24, E32, J63

## **How Destructive is Creative Destruction? Investigating Long-term Effects of Asymmetries in employment and hours adjustments: Theory and evidence**

**Pekka Ilmakunnas (Helsinki School of Economics)**

The paper examines whether labor input adjustment is asymmetric upwards and downwards and whether there are differences between employment and hours adjustment in this respect. A model is formulated to integrate job creation and destruction and the choice between workers and hours per worker. Cyclical asymmetries of gross job and hour flows are examined with the model. Empirical evidence is presented from the Finnish manufacturing using linked employer-employee data. With plant-level panel data, ordered probit models are estimated to determine the regimes of employment change (job creation, no employment change, job destruction) and hours change (hour creation, no change, hour destruction). Based on ordered probit selectivity rule, models are estimated for non-zero values of job creation and destruction, and hour creation and destruction. Asymmetries in the impacts of the explanatory variables on the creation and destruction of jobs and hours are examined.

**Keywords:** employment, working hours, linked employer-employee data

**JEL Classification:** J21, J23

## **WAGE PERSPECTIVE**

**PEDRO ORTÍN-ÁNGEL (Universidad Autónoma de Barcelona)**

**ALBERT A. CANNELLA JR.**

We develop theoretical arguments from the efficiency wage model (Shapiro & Stiglitz, 1984) in order to better understand Fama's (1980) seminal notion that executive labor markets contribute to the alignment of manager and shareholder interests. The model can be integrated with most theories and empirical evidence concerning top executive turnover. It allows for predictions regarding relationships that until now have received very little analysis, such as the effect of firm risk and management salaries on top executive turnover or the analysis of the consequences that employment termination would have on leaving managers. We test the implications of the model on a sample of executives from 280 manufacturing firms observed annually between 1986 and 1992. Our sample includes data on over 12,000 observations and nearly 1,700 employment terminations. The results are consistent with the main predictions of efficiency wage models. With equal performance, boards of directors are less patient (greater probabilities of dismissal) with managers on lower salaries and in higher risk firms. Meanwhile, managers who leave their posts generally suffer penalization in their professional careers at listed companies.

## ***Investment***

**Factors in business investment: an expectation based approach using business survey data**

**Antoine Naboulet (I.D.H.E Cachan, Ecole Normale Supérieure de Cachan, France)**

**Sebastien Raspiller**

This paper aims at enlightening firms' investment decisions by focusing on their subjective judgments about the impact of different factors (expected demand, expected profit, financial conditions, technical factors...). This work uses INSEE's business surveys on investment in the industry. In October these surveys contain questions about

the effect of factors on realized and expected capital expenditure. Data from 1991 to 2001 are studied at individual and aggregate levels.

**Keywords:** investment decision, expectations, business survey data, panel data, Mundlack's method

**JEL Classification:** C23, D84, E22

## **Investment Patterns In UK Manufacturing Establishments**

**Lia Pacelli (UCL, IFS, LRR and University of Turin)**

**Orazio P. Attanasio**

**Isabel Reduto dos Reis**

In this paper we document the extent to which lumpy investment behaviour is present in UK plant level data. For this purpose we use the Annual Business Respondents Database (ARD) from 1980 to 1992. The aim of this paper is twofold. First, it describes an estimation method of capital stock at the establishment level, by asset, based on the ARD. The distinctive feature of this work is the treatment of leased assets. Second, it provides evidence on the extent of non convexities and irreversibility of investment by asset in the UK. It highlights that a large fraction of aggregate investment is accounted for by few establishments that are investing a lot. Furthermore, for each establishment, a large fraction of its investment activity over a long horizon is accounted for by a few large episodes. Significant differences emerge in the investment patterns by asset, where “buildings and land” are the most rigid asset, “plant and machinery” the most flexible, “vehicles” are a rigid but not irreversible investment. Innovative contributions to the descriptive literature on this topic are: focus on the UK, disaggregate analysis by asset, statistics on net as well as gross investment rates.

**Keywords:** investment; non convex adjustment costs; irreversibility; plant-level evidence

**JEL Classification:** D2

## ***Development of Integrated & Systematized Micro Enterprise Statistical Information Systems (EISIS) for Policy Impact Analysis***

**Development of EISIS and associated methodological issues**

**Paolo Roberti (Istat)**

About two years ago, The Italian Statistical Office (ISTAT) has developed and successfully won a EU FP5 Project, DIECOFIS (Development of a System of Indicators on Competitiveness and Fiscal Impact on Enterprise Performance) with the ambitious aim of

- Creating a Comprehensive, Integrated and Systematized Statistical Information System of micro enterprise data that can effectively serve to support policy impact analyses activities of various types;
- Pilot microsimulation models to simulate the impact of public policy on enterprise performance in two countries (Italy and the United Kingdom), with a view to (i) widen its scope to eventually cover all EU Member Countries and the Community as a whole; and (ii) support with “numbers” the policy making process;
- Develop “maps” that can be *enlarged* and systems indicators that are micro-founded, have clear properties, are well-behaved and appropriate to capture “systemic features” and related strengths and weaknesses. For a short description see Annex 1. More information is available at [www.istat.it/diecofis](http://www.istat.it/diecofis). After two years, DIECOFIS is on course, as planned. It is well advanced and results have exceeded original expectations. Our proposed themed session would serve to present DIECOFIS results, discuss them, get useful and needed feedback, and share experience in view of a continuation of the project’s activities. In particular, we wish to discuss the potential associated with the development of EISIS (Enterprise Integrated and Systematized Statistical Information Systems)

### ***Data access: Contexts and solutions***

#### **Remote Access to Confidential Data**

**Tanvi Desai (London School of Economics)**

This paper will examine why remote access systems are becoming increasingly more necessary to users of micro data. It will set out the basic criteria to consider when choosing a remote access system, and discuss various ways to secure data access. The paper will then consider how to effectively support a remote access system. Finally it will examine further developments necessary to improve these systems.

#### **The Danish System for Access to Microdata - From on-site to remote access**

**Ole Schnor (Statistics Denmark)**

**Lars Thygesen**



## **Otto Andersen**

Statistics Denmark has altered its scheme for giving researchers access to de-identified micro data from on-site to remote access through the Internet. The new system covers data for persons as well as for businesses. The contents of the Danish statistical registers cover many fields of research such as labour market research, sociology, epidemiology and business economics. The strength of the system is that the identification keys (Person Number, address, central business register number and property title number) render it possible to correlate the aggregated data both within a specific year and longitudinally across several years. The data potential for research is unique. In the mid-1980s, Statistics Denmark experienced an emerging interest among various research environments and ministerial analysis divisions in applying micro data (individual data) for research and analysis purposes. Statistics Denmark is not allowed to hand out micro data because of the rules of confidentiality lay down by the Management and Board of Statistics Denmark. However, it was evident already at in the mid-1980s that not only were the registers of enormous importance to Statistics Denmark, but their research potential was so great that it would be very valuable to actually utilise them for research purposes. Therefore, Statistics Denmark had to find a solution to the problem of access, which complied with the existing legislation on registers while taking into account Statistics Denmark's own confidentiality principles.

The solution was to establish an on-site arrangement allowing researchers to get access to deidentified micro data from work stations in Statistics Denmark. During the autumn of 2000 Statistics Denmark initiated a pilot study in order to develop a remote access system giving the same security as the well tested on-site system. It was found that such a system could be established and was started up 1 March, 2001. The remote access arrangement has been evaluated after 1.5 years and Statistics Denmark is convinced that the security around the scheme is adequate and at the same level as in the on-site arrangement.

Therefore Statistics Denmark will grant remote access to all accepted project data to authorized Institutions. In Denmark we have found it expedient to distinguish between micro data on citizens and on enterprises, the latter containing more problems than the former, since it is difficult to avoid that people getting access will immediately recognize well-known companies even without identifiers. For this reason, we have decided to restrict access to business micro data: Data have to be at least one year old, and access cannot be granted to research departments of private companies.

## **Access to business data in the UK: The regulatory context for government collections**

### **Felix Ritchie (Office for National Statistics, UK)**

The UK approach to official statistics in general and business data in particular has evolved over the centuries into a compartmentalised system, where data can be shared between interested parties but only under certain specified rules and conditions. Use of data is tightly controlled but flexible enough to provide ways to access the data for research purposes. The Statistics of Trade Act 1947, which governs most of the surveys

of business, reflects this approach to confidential data. In recent years ONS has reviewed the use it makes of its large data archives, and is now putting in place systems to provide access to microdata. These are at an early stage of development and so several legal and procedural issues need to be resolved, but it is intended that these systems will provide a firm and secure basis for permanent access arrangements.

### ***Internal labour markets***

## **The Prevalence of Internal Labour Markets - New Evidence from Panel Data**

**Tor Eriksson (Aarhus School of Business)**

**Axel Werwatz**

In recent years, a small but growing literature concerned with the empirical analysis of the workings of internal labour markets has emerged. These studies, notably Lazear (1992) and Baker, Gibbs and Holmström (1994), which have almost exclusively been based on personnel records data from single firms, have begun to provide some empirical evidence on many of the issues raised by the primarily theoretical field of personnel economics. Still, the question remains: can the results from studies of individual firms be generalised? Instead of one further single firm study, this paper uses an employer-employee linked data set based on 222 Danish private sector, medium-sized or large firms during the period 1980 to 1995. The principal aim of the study is to look for evidence of internal labour markets by focussing on whether there are stable careers, whether being an incumbent has advantages for one's subsequent career, and on to what extent and how wages are set within the firm. We also examine the influence of the external labour market on wage setting within firms. The data set allows us to examine whether firms differ, and if so, if there are industry-specific differences or differences between growing, stable, and declining firms. Moreover, our study provides insights different from those of earlier work by comparing the internal labour markets of managerial employees with those of the much less studied non-managerial workers.

**Keywords:** Internal labour markets; Careers; Promotions; Firms' wage structures

**JEL Classification:** J40, J41, J31

**TOP EXECUTIVE TURNOVER REVISITED FROM AN EFFICIENCY  
INTERNAL PROMOTION VERSUS EXTERNAL RECRUITMENT:  
EVIDENCE IN INDUSTRIAL PLANTS**

**PEDRO ORTÍN-ÁNGEL (UNIVERSITAT AUTÒNOMA DE BARCELONA)**

**ALBERTO BAYOMORIONES**

An analysis is carried out in a sample of 738 industrial plants of the factors related with the use of internal promotion of blue-collar workers to middle managers and skilled technicians as against their external recruitment. The use of internal promotion is positively correlated with variables indicative of the efforts made by plants to measure employees' skills, and to a lesser extent, with the level of specificity of investments in human capital made by blue-collar workers. Contrary to what was expected, variables related with the use and efficiency of other incentive systems have no significant influence on the increased or decreased use of internal promotion. These results are initial evidence that internal promotions are used to protect and favour specific investments, especially those made by firms in order to discover their workers' skills

**Keywords:** Internal promotion; external recruiting; learning; human capital; incentives

**JEL Classification:** J41, M12

## **Occupational Labor Markets**

**Mike Gibbs (University of Chicago Graduate School of Business)**

**Kathryn Ierulli**

**Eva Meyersson-Milgrom**

Using matched worker-firm personnel data covering much of the Swedish private sector from 1970-1990, we analyze the causes and effects of three types of career moves: changes in occupation, firm, and hierarchical level (the latter for moves both within and between firms). Workers change occupations less than they change firms, suggesting attachment to “occupational labor markets” is as important as attachment to internal labor markets. Career job search has a two-stage pattern: occupational changes tend to occur before firm changes. All three career moves have large effects on wage growth; promotions have the largest effect. The wage effects of simultaneous changes (e.g., firm and occupation together) are larger than the sum of individual effects. Larger firms operate more effective internal labor markets, providing better opportunities for occupational and hierarchical level change. There is evidence of fast tracking in both promotions and exits. We find little effect of gender on any of these phenomena.

**Keywords:** Careers, internal labor markets, occupations

**JEL Classification:** J41, M5

## ***Regional***

### **The micro-level dynamics of regional productivity growth: The source of divergence in Finland**

**Petri Böckerman (Labour Insitute for Economic Research)**

**Mika Maliranta**

Productivity growth of the Finnish regions in 13 manufacturing industries is decomposed into microlevel sources by using plant-level data from 1975 to 1999. There are substantial regional differences in the intensity of productivity-enhancing restructuring. Dynamic competition is more intensive in Southern Finland, where the productivity level is also high. In contrast, plants located in Eastern Finland are equipped with low-productivity technologies owing to persistently sluggish microlevel dynamics. Productivity dispersion between plants within industries is greatest in Southern Finland. We argue that intensive experimentation is a more reasonable interpretation of this finding than large static X-inefficiency in this high productivity region.

**Keywords:** productivity, competition, efficiency, micro-level restructuring, regional disparities

**JEL Classification:** O12, R23

### **JOB FLOWS AND ESTABLISHMENT CHARACTERISTICS: VARIATIONS ACROSS U.S. METROPOLITAN AREAS**

**R Jason Faberman (U.S. Bureau of Labor Statistics)**

This paper addresses the role played within metropolitan areas by heterogeneous agent models of constant churning. The evidence shows positive relationships between job turnover, young establishments, and metropolitan employment growth. Most areas, however, differ in their levels of job creation rather than job destruction. Results persist after controlling for regional differences in industry, but less so when controlling for differences in the establishment age distribution, and are consistent overall with standard models of creative destruction. Evidence from several entering cohorts, however, contradicts the vintage replacement process of creative destruction models. Namely, job destruction decreases as establishments age and there is no clear inverse relation between establishment entry rates and exit ages. These patterns are instead consistent with a turnover process seen in standard models of firm learning. Further evidence suggests that these patterns vary systematically with the overall employment growth of a region. Together, the results suggest that (i) processes of both creative destruction and firm learning may matter for local labor dynamics, but future models will have to reconcile

with this new evidence, and (ii) intrinsic local factors, such as the “business climate”, may affect the dynamics of both processes.

**Keywords:** job turnover, regional and urban growth, creative destruction, firm learning

**JEL Classification:** E24, J63, R11

## **Regional grants, agglomeration and firm location**

**Helen Simpson (Institute for Fiscal Studies)**

**Michael P. Devereux**

**Rachel Griffith**

We examine whether discretionary government grants influence the location of new plants, and how effective these incentives are in the presence of agglomeration and urbanisation externalities. We find evidence that regional industrial structure affects the location of new entrants - firms locate new plants near to others in the same industry, and are also attracted to locations with a diversified industrial structure. Foreign multinationals locate new plants near to other foreign-owned plants in the same industry. Fiscal incentives in the form of grants are found to be effective in attracting plants to specific geographic areas that are eligible for such aid, but as the extent of industry agglomeration increases the effectiveness of the fiscal incentive decreases.

**Keywords:** Firm location, agglomeration, selective assistance, regional policy

**JEL Classification:** R12, R3

## ***Wages 2***

### **Wage mobility among low wage workers - the importance of firm characteristics**

**Iben Bolvig (Aarhus School of Business, Graduate School for “Integration, Production and Welfare”, and CCP (Centre for Corporate Performance))**

The purpose of this study is to focus on the role of the firm when analysing wage mobility among low wage earners. The analysis is carried out in a duration analysis framework, examining low wage job spells in more than 20,000 Danish firms. I correct for unobserved heterogeneity both at the individual and the firm level. The average

duration and the survival curves of low wage job spells suggest that low wage jobs in general are transitory jobs. The estimated expected duration of a low wage job for an average employee in an average firm is 2 years. The duration dependence is inverted U-shaped for all transitions out of low wage jobs. I find that, both individual and firm characteristics are important in explaining the hazard rate out of low wage jobs, but models correcting for individual unobserved heterogeneity are doing significantly better than models correcting for firm specific unobserved heterogeneity. The observed effects vary significantly between transitions to different destinations. As for the effects of firm characteristics, I find that the probability of getting higher wage in the same firm increases with the size of the firm, whereas the transition to higher wage in a new firm decreases with the size of the old firm. The effect of the local relative to the national unemployment rate on moving to a new firm is negative. Hence, workers do not seem to move to a low unemployment area to get a new job, but instead they leave employment. I find that low wage employees in firms with a high average age of the labour force have a lower separation rate from the firm, and a higher probability of getting a wage promotion inside the firm. I.e. these firms have a lower workforce turnover, which might be due to a more conservative way of thinking. The higher the proportion of managing employees in a firm, the higher is the general mobility out of low wage jobs. Finally, I find that the transition out of low wage jobs increases with the rate of low wage workers in the firm, except for the transition to higher wage in the same firm, i.e. there is a higher tendency to leave a low wage firm, which imply that certain firms are specifically low wage firms.

**Keywords:** Low wage earners, wage mobility, firm behaviour, employer-employee relations

**JEL Classification:** J21, J31, J41, J44, J62

## **Wages and the Risk of Displacement**

**Pedro Portugal (Banco de Portugal and Universidade NOVA de Lisboa)**

**Anabela Carneiro**

In this paper a simultaneous-equations model of firm closing and wages is developed in order to analyse how wages adjust to unfavorable shocks that raise the risk of displacement through firm closing, and to what extent a wage change affects the exit likelihood. The results show that the fear of job loss generates bargaining concessions instead of compensating differentials. A truly novel result that emerges from this study is that firms with a higher incidence of minimum wage earners are more vulnerable to adverse demand shocks due to their inability to adjust wages downward. In fact, minimum wage restrictions were seen to increase the failure rates.

**Keywords:** wages, displacement risk; concessions

**JEL Classification:** J31; J65

## ***International Wage Flexibility Project***

### **International Wage Flexibility Project: special session**

**Erica Groshen (FRBNY and Brookings Institution)**

**William Dickens**

Past analysis of wage rigidity in Europe has been done with macro data on prices, wages and unemployment. The International Wage Flexibility Project (IWFP) is a collaborative project in which thirteen country teams and researchers at the European Central Bank will use micro data to study the nature, extent, causes, and consequences of wage rigidity. Downward nominal rigidity in wages can cause significant unemployment when average nominal wage changes are small. Inflation can ameliorate this problem effectively “greasing the wheels” and allowing relative wage adjustment. However, inflation also causes price signals to lose their usefulness adding “sand” to the economic engine and making it less efficient. Groshen and Schweitzer have proposed a method for identifying the extent to which inflation has each of these effects. The IWFP will use this method to analyse the relative importance of each problem. All country teams participating in the IWFP will conduct a core analysis which will replicate the Groshen-Schweitzer “sand and grease” analysis of wage rigidity. Also part of the core analysis will be a method-of-moments estimator for downward real and nominal rigidity developed for the project. In addition, each country team is conducting special analysis which take advantage of unique aspects of their data.

## ***ICT 2***

### **Productivity and electronic networks; Efficiency effects in firms and markets.**

**Tony Clayton (Office for National Statistics, UK)**

**Chiara Criscuolo**

**Peter Goodridge**

**Kathryn Waldron**

This article outlines work in ONS to improve measurement and understanding of information and communication technology (ICT), and how its use affects economic activity. It reviews data on technology adoption, and changes in firm behaviour

associated with electronic transactions. It also summarises work to identify economic effects of e-commerce, through different survey sources

## **Productivity Slowdown and the Role of the ICT in Italy: A Firm-Level Analysis**

**Carlo Milana (Istituto di Studi e Analisi Economica)**

**Alessandro Zeli**

This paper presents a firm-level analysis of the productivity slowdown that has been recently observed in Italy. DEA techniques are applied to the firm-level data collected within the annual surveys on the economic accounts of enterprises carried out by the Italian National Statistical Institute (ISTAT). TFP changes over the years 1966-1999 have been measured for 33 industries and have been decomposed into technological change (shift in the production frontier) and change in relative technical inefficiency (due to modifications in the distance of the single firms from the frontier). This decomposition has turned out to be helpful in interpreting the nature of the observed productivity slowdown. Econometric regressions of the firms' TFP changes on a number of variables, including a component factor correlated to ICT, reveal that the information and communication technologies may have had a positive and significant impact on TFP in all industries during the examined period.

**Keywords:** ICT, Technical efficiency, Productivity

**JEL Classification:** D2, L2, O4

## **Firm level analysis of information network use and productivity in Japan**

**Kazuyuki Motohashi (Hitotsubashi University and Research Institute of Economy, Trade and Industry)**

This paper shows firm level micro analysis of information network use and its impact on firm's productivity. New evidences on economic impacts of IT by type of its application are provided, based on METI's firm level data of Japanese manufacturers and distributors. It is found that productivity impact of information network use is different, depending on application of network. In addition, due to rapid progress of information technology, economic implications of information network are different also by the timing of its introduction. METI's datasets covers information on network use by its type, as well as firm's IT use throughout the period of 1990's. Detail analysis of information network use at Japanese firms can shed a new light on heterogeneous and dynamic nature of firm level IT use and its performance.

**JEL Classification:** D24, O33



## **Disentangling the impact of ICT capital deepening and ICT spillovers on labour productivity growth: Evidence from Dutch firm-level data**

**George van Leeuwen (CPB, Netherlands)**

**Henry van der Wiel**

This paper presents an empirical analysis of the contribution of ICT to labour productivity growth, using an extensive panel of accounting data for Dutch market services. We estimated enhanced production function models that include ICT spillovers as well as innovation as a component of TFP (growth) with the help of recently developed econometric methods. We compare the results of the production function approach with growth-accounting carried out at the firm level. Doing so, we attempt to reconcile the different pieces of empirical evidence regarding the contribution of ICT to productivity growth reported in the literature. It is shown that, after accounting for ICT spillovers, the relatively high elasticities of own ICT capital stocks of production function models estimated on firmlevel data are consistent with the contribution of ICT capital deepening to labour productivity growth reported in growth-accounting studies. Our results underline that the contribution of ICT spillovers to productivity growth in the years of the ICT boom was more substantial than the contribution of ICT capital deepening as suggested by the standard neo-classical model of firm behaviour.

**JEL Classification:** C33, D21, D24, L80, O30

## ***Industry studies 2***

### **Electricity Prices at U.S. Manufacturing Plants, 1963-2000**

**Cheryl Grim (Center for Economic Studies, U.S. Census Bureau)**

**Steven J. Davis**

**John Haltiwanger**

**Mary Streitwieser**

We study the distribution of electricity prices paid by U.S. manufacturing plants from 1963 to 2000. Our study relies on a newly constructed database that includes information for more than 48,000 manufacturing plants per year linked to additional data on electricity suppliers. The shipments-weighted standard deviation of log electricity prices across manufacturing plants stood at 26% in 1963, fell sharply to 16% by 1978, and then changed little over the next 22 years. The “great compression” of price differentials in the

1960s and 1970s reflects a dramatic erosion of quantity discounts: the elasticity of price with respect to annual electricity usage declined from -17.5% in 1963 to -6.5% in 1976, and the fraction of overall dispersion accounted for by usage differentials shrank from 67% to 15%. Despite efforts to improve the national electricity transmission grid during our sample period and to promote competition in wholesale and retail markets during the 1990s, the spatial dispersion in electricity prices is remarkably stable. The between-county standard deviation of log electricity prices ranges from about 11 to 13% over the past four decades, with no trend. Most of this spatial variation reflects average price differences among roughly 350 utilities that supply most of the electric power to the manufacturing sector. In turn, power source differences explain much of the average price differences among utilities.

**Keywords:** electricity price distribution; spatial price dispersion; price-quantity schedule

**JEL Classification:** L60, L94, Q40

## **Not Just Where, But What Consumers Buy – The Canadian Experience based on Business Data**

**Robert Lussier (Statistics Canada)**

**Dave McDowell**

**Elton Cryderman**

Many countries produce sub-annual statistics on retail sales. These data are commonly used to estimate sub-annual consumer expenditures on goods. Traditionally, retail surveys are conducted and disseminated according to the industrial classification of the stores, while consumer expenditures are commodity based. How much has the growth of large format stores altered the commodity mix of sales by industry? For example as supermarkets in Canada grow larger some have become “Main Street in a box” offering a wide range of products. Just how good a proxy is industry for commodity? For some time Canada has monitored, on a monthly and a quarterly basis, over a hundred retail commodity groups. Two surveys are used for this purpose. The paper will describe the two surveys as well as provide some insights into answering the following questions: 1. What do consumers buy – the supply perspective, 2. Over the years, have spending patterns changed? 3. When do Canadians buy their goods – commodity seasonality, 4. What do stores sell? 5. Over the years, are there industry trade groups taking a bigger market share of some commodities? The information generated are used by a variety of people. They are used by Statistics Canada's System of National Accounts in two ways: first in the production of the Income and Expenditure Accounts every quarter (with respect to the estimates of personal expenditure) and secondly in the production of the Input/Output tables every year. Further constant price estimates, a key component of the CSNA, requires matching prices indexes to commodities. There is much interest in retail trade itself valued at constant prices. This can be best estimated from the commodity perspective. Retailers as well as analysts who follow the retail industry use the data to

calculate market share and market trends. The various levels of government examine the data to monitor the economy and consumer confidence. Finally, the media like the data to address a myriad of questions such as: how much do people spend on necessities, big-ticket items, and discretionary purchases? The authors are not aware of any other countries in the world with such an extensive commodity program. L'INSEE, in France, collects detailed commodity information as part of its annual retail trade survey and the ONS, in England, collects a few broad commodity classes as part of a monthly retail trade survey. The Retail Commodity Program appears to be a distinguished feature of the Canadian Retail Trade Statistics Program.

## ***Labour market dynamics 2***

### **Fixed-term contracts in the Netherlands: who took them, how were they paid? The analysis using the linked employee-employer data**

**Yongjian Hu (University of Amsterdam)**

**Kea Tijdens**

Since the 1980s the efficiency of labour market has been the major topic in the social-economic debate across EU member countries. The debates were characterized by a bias in favor of increasing flexibility in labor market. As other EU member countries, fixed-term contracts have received much attention in the Dutch labour market. In this paper, we use the linked employee-employer data, the “AVO”(Arbeids Voorwaarden Ontwikkeling) to analyze fixed-term contracts in the Netherlands. We first illustrate the major structures of fixed-term contracts and then study what type of employee is more likely to take fixed-term contract by using a multinomial logit model. We also examine the wage differentials between permanent contracts and fixed-term contracts. The results show that there was no evidence that fixed-term contracts received wage premium because of their taking precarious jobs, in contrast, there was a larger wage penalty associated with full-time workers employed under fixed term contract, though for fixed-term part-timers, such wage differentials could be shrunk.

**Keywords:** fixed-term contracts, permanent contracts, hourly wage differential (gap)

**JEL Classification:** J23, J31

## **Why Do Firms Use Fixed-Term Contracts?**

**Pedro Portugal (Banco de Portugal and Universidade NOVA de Lisboa)**

**Jose Varejao**

This paper investigates the reasons why firms use fixed-term contracts. Two distinctive features of these contracts - reduced firing costs and the prohibition of contract rollover - are highlighted. Firms' decisions related to temporary contracts - the choice of the contract on offer and contract conversion - are modeled within standard adjustment costs and matching settings. The predictions of both models are tested by means of regression analysis performed on the stock of fixed-term contracts and the flows of temporary workers to permanent positions. Results from a beta-binomial regression model indicate that screening workers for permanent positions is the single most important reason why firms use this type of contract.

**Keywords:** Fixed-Term Contracts, Adjustment Costs, Temporary Employment

**JEL Classification:** J23, J41.

## **Employee Turnover: Less Is Not Necessarily More?**

**Yi-Ping Tseng (University of Melbourne)**

**Mark Harris**

**Kam-Ki Tang**

Theoretical studies have suggested firm specific human capital and job matching as the major, but opposite, mechanisms through which employee turnover affects labour productivity. This study finds that the former dominates when turnover is high, while the latter dominates when turnover is low. The optimal turnover rate that maximises productivity is about 0.22 per annum. Bringing the observed turnover rates in the sample to the optimal level increases the average productivity by 1.1 per cent. The large gap between the observed and the optimal rate could be explained by the lack of decision coordination between agents in labour markets.

**Keywords:** Employee turnover, productivity, firm specific human capital, job matching, panel data, coordination

**JEL Classification:** J41, J63

## ***Business demographics and performance 2***

### **Modelling corporate tax liabilities using company accounts: a new framework**

**Saeed Ahmed (University of Cambridge)**

This paper examines different approaches to corporate tax modelling and presents a new framework to estimate corporate tax liabilities. Using firm level panel data of UK companies in three diverse sectors, the framework produces many strong results which have implications for microsimulation modelling, financial transparency, and corporate governance. The findings suggest that firms reduce their tax liabilities through different channels to maximise 'after-tax' profits. The evidence shows, inter alia, that not only are trading profits and capital gains important determinants of corporation tax but so also are their components, such as gross profit, cost of sales, expenses, and even one-off 'exceptional items' and 'extraordinary items'. The results also indicate that firms' size, organizational structure, investment, and financial policy are important factors impacting on corporate tax liabilities. Moreover, different tax reliefs and allowances affect tax liabilities asymmetrically.

**Keywords:** Corporate income tax, panel data, corporate structure, financial and dividend policy, revenue forecasting and estimation, microsimulation modelling

**JEL Classification:** C33, E17, G32, G35, H25, H32

### **Does Schumpeterian Creative Destruction Lead to Higher Productivity? Evidence on Entry and Exit in Portuguese Manufacturing**

**Carlos Carreira (Universidade de Coimbra)**

**Paulino Teixeira**

This study examines the firm dynamics (namely the entry and exit of firms) and their contribution to industry productivity growth. We used an original and statistically representative unbalanced panel of Portuguese manufacturing firms (1991-2000). As expected, the entry and exit rates were very substantial. The entry market shares of newly created firms were very small but new firms did tend to show strong market share growth rates. Entrants were less productive than incumbents, but the differences in productivity tended to vanish very quickly. Exiters were shown to be less productive than entrants. Our decomposition of the sources of productivity growth showed that a large percentage of industry-level productivity growth could be imputed to firm dynamics.

**Keywords:** Entry and Exit; Creative Destruction, Productivity Growth; Industrial Dynamics

**JEL Classification:** D21, D24, L60, O40, O47

## **Business Failure in UK and US Quoted Firms: Impact of Macro-Economic Instability and the Role of Legal Systems**

**Paul Kattuman (University of Cambridge)**

**Chris Higson**

**S.Holly**

**Arnab Bhattacharjee**

Firms exit through the mutually precluding events of bankruptcy and acquisition. We use a competing risks hazard model to identify the characteristics leading to each of these two outcomes using over thirty years of data on US and UK quoted firms. While many of the predictions of theory are borne out by the data, there are significant differences in the way in which firms in the US and the UK react to changes in the macroeconomic environment and, particularly to macroeconomic instability. We argue that these differences in response may be attributable to differences in the US and the UK in the bankruptcy Classification.

**Keywords:** Bankruptcy, Acquisitions, Macro-economic Instability, Competing Risks Cox Proportional Hazards Model, Chapter 11, Receivership

**JEL Classification:** L16, G33, E32, K22, C41

## ***Evidence Based Policy Fund Productivity Microdata Project***

## **Innovation and Productivity Growth: Evidence from Matched CIS and Census Data**

**Chiara Criscuolo (UCL and CeRiBA)**

**Jonathan Haskel**

## **Skills and productivity in the UK using matched establishment, worker and workforce data**

**Jonathan Haskel (QMUL, CeRiBA, ONS)**

**Denise Hawkes**

**Sonia Pereira**

Using matched plant level skills/productivity data we document (i) more productive firms hire more skilled workers (e.g. top decile productivity plants hire workers with, on average, 2 years extra schooling relative to bottom decile plants) (ii) both hard and soft skills are significantly positively associated with TFP and (iii) in an accounting sense, the skills gap between the top and bottom firms in the productivity distribution explains about 8% of the TFP gap.

## **Measuring the true spread**

**Ralf Martin (LSE and CeRiBA)**

How much of the observed labour productivity spread is real? This paper develops a novel framework to calculate productivity differences between plants which are due to differences in TFP and/or idiosyncratic demand shocks and not due to measurement error in variable factors or substitution between labour and other factors. The framework simultaneously accounts for imperfect competition, variations in output prices across plants and endogeneity of factor inputs. For UK manufacturing as a whole I find that on average 58 percent of the labour productivity spread is explained by TFP and demand shocks. Measurement error accounts on average for 9 percent of labour productivity spreads. This masks considerable heterogeneity across 3 digit sectors with measurement error accounting for as much as 26 percent in some sectors.

## ***Innovation 2***

### **What happened to innovation in the UK? Comparing the UK Community Innovation Survey (CIS) 2 and 3.**

**Linda Hesselman (UCL)**

This paper will analyse the results of the two U.K. Community Innovation Surveys (CISs) with a view to developing policy recommendations. In Hesselman (2002) some of the results for the second CIS were analysed. This paper will analyse the CIS3 survey results in a similar way. It will analyse the surveys as separate cross-sections. It will also

consider some results with the two surveys pooled into a panel. By combining enterprises' innovative activity at two points in time and over time, it the paper will provide evidence-based policy recommendations.

**Keywords:** innovation, public policy to support innovative activity, sources of information and knowledge

**JEL Classification:** O31, O32, O33

## **Employee Involvement and Participation in Knowledge Organizations**

**Peter Nielsen (Center of Labour Market Studies, Aalborg University)**

Innovative firm behaviour has to do with embedded organizational competence. It is competence which rely on the ability of the workforce in the firm continuously to learn and develop knowledge as a collective resource, but not least on the existence of efficient channels of influence to get through with new ideas and problem solving in the organization. This paper focus on this important human side of innovation. We shall identify the building blocs adopted and combined when developing knowledge organizations. Building blocks which establish the framework of human interaction in the production process, aiming at knowledge creation, knowledge communication and materialization of knowledge as product or service innovations on the market. Further, we shall analyse the role and pattern of involvement and participation in relation to the process of organizational change towards knowledge organizations. The empirical analysis is based on a survey adresssed to all Danish firms in the private sector with 25 or more employees, supplementet with a stratified proportional sample of firms with 20-25 employees. The survey has collected information from management as well as from employee representatives by means of two seperate questionnaires, implemented through two phases of data collection in each of the firms selected. The present analysis is build on data from the management questionnaire.

**Keywords:** Knowledge organizations, Innovation, Participation

## ***Productivity 2***

### **The Measurement and Decomposition of Productivity Change: Exercises on the Netherlands' Manufacturing Industry**

**Ellen Hoogenboom-Spijker (Statistics Netherlands)**

**Bert M. Balk**



An important issue in productivity measurement, with potential influence on national economic policy design, concerns the relation between aggregate and firm-level figures. Aggregate productivity change depends not only on intra-firm productivity change, but also on the dynamic process of expansion and contraction of firms, emergence of new firms, and disappearance of old firms. Amongst researchers there is discussion not only on the proper decomposition method but also on other conceptual issues. Taking the Netherlands' part of the study on productivity and firm dynamics, coordinated by the Economics Department of the OECD (see OECD 2001a), as our point of departure, this study focuses on the sensitivity of the results. First, we conclude that the decomposition methods, discussed by Balk (2001), can be grouped into two sets, between which the results differ remarkably. Using one set of methods, the continuing firms appear to account for most of the aggregate productivity change. Using the other set, the entering and exiting firms appear to be the most important players. Second, the sensitivity of the results with respect to the productivity concept used (based on gross output or value added) will be examined. For example, it appears that gross output based measures lead to lower percentages of annual productivity change than value added based measures. Finally, supplementing production survey data with information from the business register leads to a more precise definition of the entry and exit process. This in turn appears to lead to a significantly lower contribution of entering and exiting firms to aggregate productivity change.

**Keywords:** Productivity change, decomposition methods

**JEL Classification:** C81, D24, J24, L60, O12, O47

## **Sources of Productivity Growth in Irish Manufacturing Industry 1991-1999**

**Frances Ruane (Trinity College Dublin)**

**Ali Ugur**

Overall labour productivity in the Irish manufacturing sector increased by 158 per cent from 1991 to 1999. This growth in labour productivity has coincided with growth in both employment and output levels during the same period, which is significantly different from the results experienced in other European countries. This paper examines the factors that affect the growth of labour productivity in the Irish manufacturing sector using a decomposition analysis utilising plant level data for the period 1991-1999. In order to account for the large presence of foreign firms industry we carry out our analysis for foreign and domestic firms, as well as four different nationality groups of firms separately. Our results show that although within and entry components are the main drivers of average labour productivity growth in all groups, there are marked differences between the size of the effects across the groups. We also carry out our analysis using the OECD four-group classification of sectors and results show that the within-effect contributes most to overall labour productivity growth in all but one sector, namely high-tech sector in which net entry that is mainly driven by entry effect and cross term contribute most which is in line with the findings of other studies in the literature.

**Keywords:** Labour productivity, decomposition, Irish manufacturing industry

## **Government Support and its Impact on Total Factor Productivity in Manufacturing Industry in Northern Ireland, 1983-1997**

**Richard Harris (University of Durham)**

**Mary Trainor**

Manufacturing industry in Northern Ireland receives extensive financial support from government with the objective of improving the economic performance of the plants that are directly assisted. Many studies have tried to assess the impact of such assistance but without the counterfactual evidence it is difficult to ascertain whether or not such support does improve performance. The aim of this paper is to use a unique matched data set to establish if such assistance has made a difference to total factor productivity in Northern Ireland manufacturing plants.

**Keywords:** Northern Ireland Regional Policy, Selective Financial Assistance, Total Factor Productivity

**JEL Classification:** D24 L50 R58

## ***Labour market dynamics 3***

### **Assortative matching in the labour market? Stylised facts about workers and plants**

**Erling Barth (Institute for Social Research, Norway)**

**Harald Dale-Olsen**

This paper presents evidence on the sorting of heterogeneous workers across heterogeneous establishments. Individuals' wages are decomposed into a time-varying component, an individual effect, and an establishment specific effect. Individual and establishment specific effects are furthermore decomposed into an observable and an unobservable part. In terms of the observable part of the productivity effects, we find evidence of positive sorting between workers and establishments. In terms of unobservable characteristics, we find a negative correlation. We also find evidence of positive matching in terms of both observed and unobserved productivity components, between workers from different educational groups.

**Keywords:** Wage inequality and mobility, matching, sorting, heterogenous workers, heterogenous establishments, linked employer-employee data

**JEL Classification:** J21, J31, J41

## **Returns to Tenure: Firm and worker heterogeneity**

**Niels Westergaard-Nielsen (IZA, CCP & Department of Economics, Aarhus School of Business)**

**Paul Bingley**

New possibilities to study tenure in Denmark reveals that long-term worker-firm relationships are not common in Denmark. Average tenure is at the level of Anglo-Saxon countries. The long series of tenure reveals that the most important individual determinant for tenure is age. Gender differences in tenure disappear over the investigated period. Even more important is the firm-dimension. The next step is to estimate the returns to tenure. One of the main issues here is to disentangle unobserved heterogeneity from the returns to tenure. Following Kletzer (1989), Addison and Portugal (1988) and Farber (1999) we deduct from the simple returns to tenure that due to worker heterogeneity, by exploiting exogenous worker displacement due to firm closures. We find that the proportion of tenure returns due to true tenure related return is much lower than in the USA. It is also found that the return to tenure has risen from a stable 10% throughout the 1980's to 30% today. The change coincides with decentralisation of wage bargaining and may be explained by the increased freedom to make individual contracts.

**Keywords:** returns to tenure, wage setting, matched employer-employee panel data.

**JEL Classification:** J3, M2

## **Worker Displacement**

**Kristiina Huttunen (University of Helsinki)**

**Jarle Møen**

**Kjell G. Salvanes**

How long-lasting are the consequences of job loss for displaced workers? This paper addresses this question using matched employer-employee panel data from Norway for 1986-2000. We investigate the long-term impact of job displacement on future employment patterns and earnings. The focus is on workers who have been displaced by plant closing or been separated from downsizing plants. The results imply that job displacement have long-lasting negative effects on workers' future earnings and

employment. Contrary to expectations, workers who stay in the plant until the closing down suffer less severe consequences of displacement than the ones who separated from them before. The effects of job loss are stronger for workers with longer pre-displacement job tenure, and for workers who are separated from bigger plants.

**Keywords:** Job displacement, Employment, Wages

**JEL Classification:** J63, J64, J65

### ***Longitudinal employer-employee data: construction and methods***

#### **The construction of a Longitudinal Matched Employer-Employee Microdata data set**

**Vitor Escaria (CIRIUS, ISEG-UTL and University of York)**

**Paulo Madrugá**

In this paper we present a matched employer-employee dataset built for the Portuguese economy that is used to the analysis of issues such as business demography and adjustment processes in the labour market.

This type of data is very useful as it combines information on both sides of the labour market and provides unique framework to analyse the interactions that take place.

**Keywords:** Matched employer-employee data; Portugal

#### **Firm Data Analysis in Linked Employer-Employees Datasets**

**Roberto Leombruni (LABORatorio R. Revelli, University of Turin)**

In linked employer-employee databases, when the employees are sampled first and then the employers data are attached, the set of firms that enter the sample is biased towards the large dimension. In this paper I discuss two strategies to impute inflating factors to the employers' records, and to obtain a sample representative of the entire population of firms. A comparison between the two strategies is made with the help of Monte Carlo simulations. As an application, I build a rotating panel of Italian firms from a linked employer-employee longitudinal database of administrative source for the years 1986 to 1998, and compare some stylised facts derived on it with the existing knowledge on Italian firms' size distribution.

**Keywords:** Firm Microdata; Linked Employer-Employees Datasets; Firms' Size Distribution

**JEL Classification:** C13; C81; J63; L1